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In the Supreme Court of the United States

OCTOBER TERM, 1969.
No. 1138

THOMAS B. McGUIRE and ANDREW POGAN,
Petitioners,

vs.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents,
Respondent.

PETITION FOR A WRIT OF CERTIORARI
To The United States Court of Customs and Patent Appeals.

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TABLE OF CONTENTS.

Citations to Opinions Below ---- 1

Jurisdiction ---- 2

Constitutional Provisions and Statutes ---- 2

Questions Presented ---- 3

Statement ---- 3

Reasons for Granting Writ ---- 9

1. The decision below has, without proper legal basis, abridged the right of the Petitioners to the patent protection sought by them through a properly filed patent application upon their new invention, which right is assured to them under the United States Constitution, Article I, Section 8, Clause 8, and the enabling patent statutes, 35 USC 101, 102 and 103, as the same have been construed by this Court upon the Constitutional standard of patentable invention ---- 9

2. The Court below made a fundamental error in its decision by holding, in effect, that conjecture as to what others may or could have done in meeting a long-felt need can be substituted for positive evidence produced by the Patent Office as to what was done in fact by others prior to the making of their invention by Petitioners, in arriving at its conclusion of "obviousness" of the claimed invention ---- 15

Summary ---- 25

Appendix:

A. Opinion and Judgment of the United States Court of Customs and Patent Appeals, Patent Appeal No. 8189 ---- 26

B. Statutes Involved ---- 36

TABLE OF AUTHORITIES.

Cases.

Anderson's-Black Rock, Inc. v. Pavement Salvage Co., Inc., ____ U.S. ____; 90 S. Ct. 305; 163 USPQ 673 —Dec. 8, 1969 ---------- 19

Graham v. John Deere Co., 383 U.S. 1; 148 USPQ 459—1966 ----------20, 21

Shaw v. E. B. & A. C. Whiting Co., ____ Fed. 2d ____; 163 USPQ 580 ----------20, 21, 23

United States v. Adams, 383 U.S. 39; 148 USPQ 479, 1966 ----------16, 18, 22

United States v. U. S. Gypsum Co., 333 U.S. 364; 76 USPQ 430 ---------- 21

Constitution.

Constitution of the United States, Article I, Section 8 ----------2, 3, 9, 10

Statutes.

28 USC 1256 ---------- 2

35 USC 101 ----------2, 3, 9, 10, 36

35 USC 102 ----------2, 3, 9, 11,14, 36

35 USC 103 ----------2, 3, 9, 11, 12, 20, 37

In the Supreme Court of the United States

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No. _____.

THOMAS B. McGUIRE and ANDREW POGAN,
Petitioners,

vs.

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Commissioner of Patents,
Respondent.

(Case entitled in the U. S. Court of Customs and Patent Appeals as: In the Matter of the Application of Thomas B. McGuire and Andrew Pogan. Patent Appeal No. 8189.)

PETITION FOR A WRIT OF CERTIORARI To The United States Court of Customs and Patent Appeals.

To The Honorable, The Chief Justice and the Associate Justices of the Supreme Court of the United States:

Your Petitioners, Thomas B. McGuire and Andrew Pogan, respectfully pray that a writ of certiorari issue to review the judgment of the United States Court of Customs and Patent Appeals entered October 23, 1969, a timely filed Petition for Rehearing being denied December 4, 1969.

CITATIONS TO OPINIONS BELOW.

The opinion and judgment of the U. S. Court of Customs and Patent Appeals of which review is requested, is printed in the Appendix A to this Petition, and was reported at 416 F.2d 1322; 163 USPQ 417.

JURISDICTION.

The judgment of the Court below was dated October 23, 1969. The Petition for Rehearing was denied December 4, 1969.

The jurisdiction of this Court is invoked under the provisions of 28 USC Section 1256.

CONSTITUTIONAL PROVISIONS AND STATUTES.

Constitution of the United States, Article I, Section 8:

"The Congress shall have Power—

to promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries."

The federal statutes involved, and printed in Appendix B are;

35 USC 101 providing that a patent may be obtained by one who makes an invention in certain categories of subject matter therein defined.

35 USC 102 providing that such an inventor shall be entitled to a patent unless certain evidence of prior knowledge exists, as there set forth in detail.

35 USC 103 providing that even if the invention upon which a patent is sought is not identically disclosed or described by the prior art as defined in 35 USC 102, a patent nevertheless may not be issued if the difference over such prior art is "obvious," as therein more fully set forth.

QUESTIONS PRESENTED.

1. Have not the Petitioners' rights been abridged by the denial of their right to patent protection upon their invention as assured to them under Article I, Section 8, Clause 8 of the United States Constitution, and the enabling patent statutes, 35 USC 101, 102 and 103, as the same have been construed by this Court in decisions upon the Constitutional standard of patentable invention?

2. Has not the Court below made a fundamental error in its decision by holding, in effect, that conjecture as to what others may or could have done in meeting a long-felt need can be substituted for positive evidence produced by the Patent Office as to what was done in fact by others prior to the making of their invention by Petitioners, in arriving at its conclusion of "obviousness" of the claimed invention?

STATEMENT.

On June 15, 1964 the Petitioners filed in the Patent Office their patent application Serial No. 375,217 on a "Tool for Internally Cutting a Tube at an Angle to the Axis Thereof."

The Petitioners have been practicing plumbers for many years and as such personally encountered in the installation of water lines of copper tubing the real and awkward problem of cutting off the excess end piece of tubing of soft bulgeable metal such as copper. In the installation of water lines in a building the tubing is "rough installed," that is, it is installed in place with a protruding excess amount of tubing, usually copper tubing, at the ends of the installed tubing. This end piece, such as 6 or 7 inches long, is later cut off at an exact location where a coupling, such as an L or T fitting, is to be connected to

the installed length of tubing in the building. The newly cut terminal of the copper tubing, after discarding the "throw-away" end piece, is snugly fitted into the cylindrical socket of the L or T fitting of the water line installation.

The Petitioners' new tube-cutting tool is described and shown in the opinion of the Court below (Appendix A) and that description need not be repeated here. Also, the two prior patents, Thomas patent of 1867 and Vance patent of 1888, upon which the rejection of "obviousness" was premised, are shown and described in the opinion below.

There is here added the following facts to be given consideration.

The standard tool long used by plumbers for cutting off the "throw-away" end piece of copper tubing has been the external-type C-shaped cutter which has the two inherent disadvantages of:

(1) The external cutter is awkward to use in close quarters because the external cutter must be revolved around the outside of the tube,

(2) The external cutter pinches or squeezes in the soft bulgeable tube wall as it cuts and thereby reduces the internal diameter of the tube, and hence requires a reaming out or resizing of the tube by a secondary operation,

(3) The external cutter tends to form burs and slivers on the tube end and these need to be removed.

Although there have been prior *internal* cutters which could cut hard tubes or pipes, such as those shown by way of example in the cited Thomas and Vance patents, these were *not usable* for cutting bulgeable metal such as copper. The Petitioners in their earlier experiments attempted to cut copper tubing with an internal cutter

wherein the cutting blade was moved directly radially outward in a plane at 90° to the tool axis. Such an internal cutter as that however was not suitable for cutting tubing of bulgeable metal such as copper because the cutting blade as it moves directly radially outward in its cutting operation *pushed out or bulged* the metal wall to form a flare or bell on the cut end of the tubing. This requires a difficult secondary operation to restore the cut end to its original true cylindrical shape in order to introduce the new tube terminal into the cylindrical socket of a coupling, such as an L or a T.

The resultant fact is that known internal cutters such as those used for cutting off steel tubes in a boiler in the repair of the boiler, such as shown in Thomas and Vance, *cannot be used* as a practical matter to cut tubing of soft bulgeable metal, as in copper water lines, to produce in one operation a cut end ready for introduction in the socket of a fitting.

Consequently, all these years since the advent of the use of copper tubing for water lines in buildings the old *external* cutting tool has been the standard tool used by plumbers for this difficult job. The internal cutters for boiler steel tube have not been used, and will not be used, for cutting off the throw-away piece of copper tubing because the action of such early internal cutters is totally incompatible with the inherent bulgeable nature of copper metal. *Insofar as the record discloses*, the boiler steel tube cutters of Thomas and Vance *have not ever been used* for cutting off the ends of soft bulgeable metal tubing, and by reason of the limitations on the uses of those old tools *they would not be used by* plumbers on tubing such as bulgeable copper.

The Petitioners' new tube cutter, as covered by the claims on appeal, offers these new advantages:

1. The Petitioners' new tool with a thin knife-like cutting edge on a cutting bit that is designed to be wholly confinable *within the bore of the tube* to be movable as required to different locations within the tube, and which cutting bit is inclined to move outwardly *and* forwardly at an *acute* angle to the tool axis, gradually as the tool is rotated on its axis within the tube, *simultaneously*;

(a) Cuts the tube at the *exact location* in the tubing, of a variety of alternate locations where the cutting blade is preselectively set,

(b) Progressively *overrides* the tube wall as it cuts into the tube wall of bulgeable metal to confine the tube wall and prevent it from flaring or bulging outwardly, and thus *retains* it in true cylindrical form without need of secondary operations to reduce the cut end to a true cylinder, and

(c) Chamfers or bevels the cut edge to eliminate burs at the cut edge of the new terminal and to provide a "lead" for the introduction of the true cylindrical terminal of the tube into the cylindrical socket of a fitting such as an L or a T.

2. Contrariwise, the Thomas steel boiler tube cutting tool forces the cutting bit directly and radially outward in a plane normal to the tool axis and the broad chisel-like edge of the cutting bit gouges or chisels out a *U-shaped channel or groove* in the inner wall of the rigid steel tube until the steel tube is severed in two with squared-off ends. Modification of the Thomas tool in an attempt to re-design it for the purposes of Petitioners' tool, would result in the following:

(a) *If* the Thomas cutting bit were inclined at an angle of say 45° to the tool axis, the broad chisel-like cutting edge of the cutting bit would then gouge or chisel out a *V-shaped channel or groove* in the inner wall of the rigid steel tube until the tube is severed in two. The effective length of the chisel-like cutting edge of the Thomas bit is about the same as the thickness of the tube wall shown and the tube wall would *not* be progressively overriden by the cutting edge to confine the wall as the cutter bit of Thomas was moved out, *even* at an acute angle to the axis.

(b) *If* the Thomas cutting bit were inclined at an angle of say 45° to the tool axis, the *inner* end face of the cutting bit and the *abutting inner* end face of the axially extending pusher rod would have to be re-designed in order to translate the axial movement of the pusher rod to the movement of the cutting bit in a path at such an angular incline.

(c) *If* the Thomas cutting tool, with the chisel-like cutting bit shown, *were* utilized for cutting soft bulgeable tubes, such as copper, with the cutting bit thereof movable *either* directly radially outwardly as shown in the Thomas patent *or*, as modified, in an inclined path at a 45° angle to the tool axis as conjectured below, the tube wall *would bulge or flare outwardly* and there would *not be produced* a tube end in true cylindrical form having a chamfered cut edge providing a "lead" on the new tube end.

3. Contrariwise, the Vance steel boiler tube cutting tool:

(a) Has a cutting bit that is *necessarily so long* that it cannot be withdrawn in the tool shaft and moved to different locations in the tube but can *only* cut the steel tube at the exact location shown in the Vance patent,

(b) Has a cutting bit that is driven by a hammer blow from outside the boiler to *puncture* all at once the tube wall, as a manually operated can-opener punctures a tin can,

(c) Has a cutting bit that is inclined at a 45° angle to the tool axis but which is necessarily moved in one revolution to completely cut the tube, as is a can top cut off in one revolution by a manually operated can-opener,

(d) The angular inclination of the cutting bit of Vance enables the cutting bit to be driven from outside the boiler, there being no other way to actuate the cutting bit, which angular inclination of the Vance cutting bit *also* provides a "beveled cut on the end of the severed tube," which facilitates the withdrawal of the severed tube from the boiler and leaves it in suitable shape for a "scarf weld" (having an angular joint) with another portion of steel tube,

(e) The Vance tool for cutting steel boiler tubes has *no relationship* to the problem of cutting bulgeable metal tubes such as copper, and there is *no mention in the Vance patent* of the problem of avoiding a *bulge* in the tube wall nor of any synonym for the word "bulge," this being readily understandable as the tube being cut by Vance was steel utilized in high-temperature boilers and capable of being welded.

From the above comparisons it is quite apparent that the Thomas tool cannot be modified by substituting the Vance cutting bit for the present cutting bit in Thomas, and that to combine the Thomas and Vance structures to provide a tool like that of Petitioners would require extensive changes, re-design, and re-arrangement, but there is no *known* source of knowledge for teaching such changes, re-design, and re-arrangement *except* that found in Petitioners' patent application. Both the Thomas tool and Vance tool as now known, and as known for the last 100 years or so, are *totally* unsuited and unadaptable for cutting tube of bulgeable metal such as copper to provide the finished results in one operation as obtained by Petitioners.

REASONS FOR GRANTING WRIT.

1. The decision below has, without proper legal basis, abridged the right of the Petitioners to the patent protection sought by them through a properly filed patent application upon their new invention, which right is assured to them under the United States Constitution, Article I, Section 8, Clause 8, and the enabling patent statutes, 35 USC 101, 102 and 103, as the same have been construed by this Court upon the Constitutional standard of patentable invention.

The negative aspects of the Constitutional basis for patents and of the enabling patent statutes, have often been cited in decisions holding certain patents to have been improvidently granted. However, there is also a *positive* aspect to the Constitutional basis and to the enabling patent statutes. There is inherent a directive of "thou shalt" as well as a command of "thou shalt not" in our patent system. In this country patents are not ob-

tainable as a matter of royal or governmental favor but as a right to which all persons who qualify under the Constitutional basis and the conditions of the patent statutes are entitled. Whether this right is labeled a Constitutional right, a civil right or a legal right is not important. Rather, what is practically important is whether the courts will respect and enforce that right in accordance with the Constitutional intent and the express words of the patent statute.

Both the purpose and intent of patents, and the limitations upon the grant of patents, is found in the Constitutional provision:

> "The Congress shall have Power—To promote the Progress of Science and useful Arts, by *securing* for limited Times to Authors and Inventors the exclusive Right to their Writings and Discoveries." (Article I, Section 8, Clause 8.)

Congress has set forth the classes of ideas upon which patents may be obtained, as follows:

> "Whoever invents or discovers any new and useful process machine, manufacture, or composition of matter, or any new and useful improvement thereof, *may obtain a patent* therefor, subject to the conditions and requirements of this title." (35 USC 101.)

No question has arisen concerning Petitioner's tool being within the classes of ideas there set forth.

Congress has unequivocally assured that patent protection shall be given to new inventions upon which a proper patent application is filed, with certain limitations set forth, in a statute providing, insofar as relevant here, as follows:

> "A person *shall be entitled to a patent* unless—
>
> (a) the invention was known or used by others in this country, or patented or described in a printed

publication in this or a foreign country, before the invention thereof by the applicant for patent, or

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States. (35 USC 102.)

To assure that patents are not granted when the differences of the newly disclosed idea over the "prior art" are unimportant, are readily apparent to others working in the same field, and are such that progress in the useful arts, as called for by the Constitution, would not truly be served by a patent grant, Congress enacted:

"A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been *obvious* at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made." (35 USC 103.)

Patent protection as sought by Petitioners has been denied them for their new plumber's tool, devised by them to solve a practical problem long known to them as experienced and practicing plumbers. This tool was never before available to plumbers faced with the difficult, awkward, and time consuming job of cutting off in cramped quarters tube end portions from tubes of copper or other bulgeable metal, at exact locations on the tube, and of presenting the new cut end of the tube in original cylindrical form in a shape for ready introduction into the socket of a fitting.

This denial has been based on the pure *conjecture* drawn from a comparison of patent drawings that "the differences sought to be patented" (the new plumber's tool as disclosed and claimed) "and the prior art" (the Thomas patent of 1867 and Vance patent of 1888 for cutting steel tubes out of a boiler) "are such that the subject matter *as a whole would have been obvious* at the time the invention was made (before June 15, 1964 when Petitioners filed their application) "*to a person having ordinary skill in the art* to which said subject matter pertains."

As the *only* "prior art" advanced as the grounds for rejection below are the Thomas and Vance patents of record, the matter of "obviousness" is one that this Court can as readily determine from the record as well as the Court below, and particularly so on the basis of the standard of invention found in this Court's other decisions on the point. In determining the matter of "obviousness" under the limitations of 35 USC 103, the following considerations are germane here:

To *whom* has it been obvious over these many years, before Petitioners conceived their invention, to take the Thomas pipe cutter and do something to it by borrowing something from the hammer-struck chisel type tool of Vance, and to come up with the important plumber's tool now presented to the trade by Petitioners?

A respect for those who accomplish, those who achieve, and those who solve real practical problems *should* produce a reticence to pass off the accomplishments, the achievements, and the solutions as merely obvious. It seems tantamount to bystanders informing inventors who have struggled hard and used their imagination and ingenuity to do that which the bystanders did not do, and perhaps could not do, that really what the inventors did

should have been readily apparent to them right along. A reasonable self-restraint on the part of the bystanders would be more becoming.

Is it fair, reasonable, and equitable to say *now* that one having theoretical knowledge of the Thomas boiler tube cutter and of the Vance boiler tube cutter should manifestly have come up with the Petitioners' answer to a most vexing and long-endured problem—a problem faced by plumbers who have been installing soft metal tubing in buildings for many years?

It has not been obvious to anyone else for the last 100 years. It has not been obvious to the thousands of plumbers who have labored so long and so uncomfortably in cramped quarters to cut off terminal pieces of protruding tubing of copper, brass and aluminum. As they skinned their knuckles trying to revolve external cutters around a tube in such tight spots, and as they then in such unfavorable locations reamed out the squeezed end of the tube and filed off burs (knowing that they certainly could not use the prior internal cutters used for steel boiler tubes because of the beading or bulging done to the "bulgeable" tubing of softer metal during the attempt to cut it), plumbers might not take too kindly to being told now that the solution to their problem had been "obvious" for the last 100 years!

For many years since the advent of the use of tubing of copper, brass and aluminum in the building industry, plumbers have been suffering the frustrations of inadequate, inconvenient, and inefficient tooling for cutting off the protruding throw-away pieces of tubing. The frustration of learning now that they had put up with all those tribulations for naught, as there had been an obvious answer to their needs all this time, would be the crowning frustration.

The solution made by Petitioners was not "obvious" to the Ridge Tool Company of Elyria, Ohio, one of the largest, if not the largest, manufacturers of plumbing tools (including external tube cutters) in the country, when *it* learned of Petitioners' new tool, had it demonstrated, investigated it, and then acquired an exclusive license under this application to make and sell the tool. This was a tribute in a very practical way by "hard-headed" businessmen to the important contribution made by Petitioners to the plumbing trade.

By an academic exercise of the imagination, by a theoretical conjecture, or by a mental deduction drawn from mere comparison of drawings on paper, *it is possible* to come up with a subjective conclusion that what Petitioners contributed toward promoting the progress of the useful arts was "obvious." But is a conclusion so reached with disregard of the realities of the art and the history of the whole practical problem faced by the Petitioners one that can fairly be reconciled with the intent and purpose of the Constitutional grant to *encourage* inventors and with the broad command in 35 USC 102 that "A person shall be *entitled* to a patent unless—"?

The Petitioners ask that this right abridged by the decision below be restored to them.

2. The Court below made a fundamental error in its decision by holding, in effect, that conjecture as to what others may or could have done in meeting a long-felt need can be substituted for positive evidence produced by the Patent Office as to what was done in fact by others prior to the making of their invention by Petitioners, in arriving at its conclusion of "obviousness" of the claimed invention.

The key to the reasoning of the Court below in reaching its decision is found in the statement in its opinion:

> "Appellants argue the century-old status of the references but this argument does not impress us, absent some showing that the art tried and failed to solve some problem notwithstanding its presumed knowledge of the references. *For aught that appears,* as soon as the need for an inside tubing cutter for copper tube was perceived it was produced out of the accumulated skill of the art." (Appendix A, page 34.) 416 F.2d 1322, 1327-1328.

It is the conjecture of the Court below that others *may or could* have produced the Petitioners' internal tube cutter utilizable for cutting bulgeable metal tubing just as soon as copper tubing came into use in the plumbing industry, and as soon as the problem of cutting off the end of the tubing was recognized. Going even beyond this, the Court below hazarded the guess that "*as soon as* the need for an inside tubing cutter for copper tube was perceived *it was produced* out of the accumulated skill of the art."

There is *no evidence* whatever that the Patent Office was able to find that the Petitioners' internal tube cutter for copper tube was *ever produced* by anyone before Petitioners.

All that the Patent Office could find in its attempt to show anticipation of Petitioners' new plumbing tool were the Thomas steel boiler tube cutter and the Vance steel boiler tube cutter, *neither* of which could be utilized for the special purposes of the Petitioners' tool.

The Court below in reality has *shifted the burden of proof* from the Patent office to the Petitioners. By suggesting that since *"For aught that appears"* the new internal tube cutter of the claimed construction "*was* produced" the Court improperly placed the burden on the Petitioners to establish that their tool had *not been produced* contrary to the Court speculation that it *may or could* have been done.

Just how such a *negative* proposition could be proved with evidence is not known. Petitioners have no way of establishing what has *not been done* over the years throughout the country.

Under the patent statutes, as heretofore construed and followed in practice, the burden is on the Patent Office to establish positively as to *what has been produced* by others.

The method used by the Court below in speculating as to what may or could have been done to arrive at its deduction of "obviousness" is a method that is irreconcilable with the decisions of this Court upon the requirement of non-obviousness for patentability.

This Court, in *United States v. Adams,* 383 U.S. 39, in applying the requirement of non-obviousness for patentability, held patentable an electric battery which made a meritorious contribution in the field of batteries and thus promoted the progress of the useful arts. It held that it was non-obvious and patentable to bring together for the first time in a battery, to which an electrolyte could be added later, a magnesium electrode and a cuprous chloride

battery, even though it had been known previously to have in wet batteries electrodes of zinc and silver chloride and though it had been known to substitute magnesium for zinc and to substitute cuprous chloride for silver chloride.

The suggested academic fabrication of anticipation by an argument that such substitutions and changes were "obvious" was rejected by this Court as it there perceived the positive requirement for the grant of patents on inventions which promoted the progress of the useful arts.

The temptation to succumb to the always present tendency to see things with hindsight after being educated with the details of the new invention was not indulged in by the decision upholding the patentability of that new useful battery:

This Court in so holding stated:

"Nor is the Government's contention that the electrodes of Adams were mere substitutions of preexisting battery designs supported by the prior art. If the use of magnesium for zinc and cuprous chloride for silver chloride were merely equivalent substitutions, it would follow that the resulting device—Adams'—*would have equivalent operating characteristics. But it does not.* The court below found, and the Government apparently admits, that the Adams battery 'wholly unexpectedly' has shown 'certain *valuable advantages* over other batteries' while those from whom it is claimed to have been copies were long ago discarded."

* * * * *

"Despite the fact that each of the elements of the Adams battery was well known in the prior art, to combine them together as did Adams, required that a person reasonably skilled in the prior art must ignore that (1) batteries which continued to operate on an open circuit and which heated in normal use *were*

> *not practical*; and (2) water-activated batteries were successful *only* when combined with electrolytes detrimental to the use of magnesium. These long-accepted factors, when taken together, would, we believe, deter any investigation into such a combination as is used by Adams. This is not to say that one who merely finds new uses for old inventions by shutting his eyes to their prior disadvantages thereby discovers a patentable innovation. We do say, however, that *known disadvantages in old devices* which would naturally discourage the search for new inventions may be taken into account in determining obviousness." *United States v. Adams,* 383 U.S. 39; 148 USPQ 479, 483, 1966.

It has again been pointed out by this Court that a new combination of elements, each old in itself, may be non-obvious and of a patentable nature upon the result being greater than the sum of the effects of each of the parts. There is a *synergism* in the result obtained by the unique structural arrangement of parts in Petitioners' new tube cutting tool whereas this Court found no such synergism in the placing of a well-known radiant heater on the same chassis as carrying other parts of a well-known paving machine to provide greater convenience in making of asphalt pavement, in its recent decision, noting:

> "A combination of elements may result in an effect greater than the sum of the several effects taken separately. No such synergistic result is argued here. It is, however, fervently argued that the combination filled a long felt want and has enjoyed commercial success. But those matters 'without invention will not make patentability.' *A & P Tea Co. v. Supermarket Corp.*, 340 U.S. 147, 153.
>
> "The patent standard is basically constitutional, Article I, § 8 of the Constitution authorizing Congress 'To promote the Progress of * * * useful Arts' by *allowing inventors* monopolies for limited times."

Anderson's-Black Rock, Inc. v. Pavement Salvage Co., Inc., _____ U.S. _____; 90 S. Ct. 305; 163 USPQ 673—Dec. 8, 1969.

Upon applying the standard of invention applied in that decision to the instant case, the Petitioners' new cutting tool having its unique arrangement and form of parts should be found to be markedly non-obvious.

The same standards of patentability should of course be followed whether in applying the negative aspects *or* the positive aspects of the patent statutes and their Constitutional basis. What this Court has said concerning the required standards of patentability in cases wherein patent protection was held erroneously granted have *equivalent value* in cases such as this wherein patent protection should be granted because of the positive direction given under the Constitution and the enabling patent statutes for the promotion of progress of the useful arts.

In a case holding a patent to have been improvidently issued this Court stated:

> "To *promote* the Progress of * * * useful Arts, by securing for limited Times to * * * Inventors the exclusive Right to their * * * Discoveries * * *." Art. I § 8. The clause is *both a grant of power* and a limitation.
>
> * * * * *
>
> "The Congress in the exercise of the patent power may not over-reach the restraints imposed by the stated constitutional purpose. Nor may it enlarge the patent monopoly *without regard to the innovation, advancement or social benefit gained thereby.*
>
> "Moreover, Congress may not authorize the issuance of patents whose effects are to remove existent knowledge from the public domain, or to restrict free access to materials already available. *Innovation, advancement and things which add to the sum of useful knowledge* are inherent requisites in a patent system

> which by constitutional command must 'promote the Progress of * * * useful Arts.' This is the *standard* expressed in the Constitution and it may not be ignored." *Graham v. John Deere Co.*, 383 U.S. 1, 6; 148 USPQ 459, 462—1966.

In the same decision involving another patent but considered as a companion case, this Court warned against the use of hindsight in appraising the contribution of an inventor as compared with old knowledge in the field. In referring to the factors of long-felt need for, and commercial success of, a new invention, this Court observed:

> "They may also serve to 'guard against slipping into *hindsight*,' Monroe Auto Equipment Co. v. Heckethorn Mfg. & Supply Co., 332 F.2d 406, 412, 141 USPQ 549, 555 (1964), cert. denied 379 U.S. 888, 143 USPQ 465, and to resist the temptation to read into the prior art the teachings of the invention in issue." *Graham v. John Deere Co.*, 383 U.S. 1, 36; 148 USPQ 459, 474—1966.

The decisions of this Court on the question of "obviousness" under 35 USC 103 have been recognized and applied by a very recent decision of the Second Circuit Court of Appeals in *Shaw v. E. B. & A. C. Whiting Co.*, ____ Fed. 2d ____; 163 USPQ 580, reversing the district court's holding of "obviousness" and sustaining the validity of a patent to the patentee Shaw as being for a nonobvious invention. The invention there was directed to a synthetic filament bristle especially adapted for brushes and brooms subject to a brushing stroke tending to break the bristles.

The inventor of the bristle had formed them by extruding the synthetic plastic material through a die to have a cross-section of cruciform or Y shape to provide stiffness with a minimum of material required and thereafter stretching the formed bristle filament to linearly orient

the molecules of the material to impart to it tensile strength. The stretching of filament with a round cross-section was old. It was also previously known to draw material through dies to provide a variety of cross-scetions, including star-shaped cross-sections which resultant filament had random or heterogeneous oriented molecules.

The district court by academic deduction had assumed that the difference between what was shown in the prior patents and what the patentee had done was a logical step and was "obvious," citing as its authority for coming to this conclusion, this Court's decision of *Graham v. John Deere Co.*, 383 U.S. 1; 148 USPQ 459.

The Second Circuit Court of Appeals there reversed the district court on the basis that the district court had *made a mistake* in making assumptions and deductions from its reading of the prior patents.

There was cited this Court's decision in *United States v. U. S. Gypsum Co.*, 333 U.S. 364, 395; 76 USPQ 430, 443, wherein it is stated that upon reviewing the record as a whole this Court was "left with the definite and firm conviction that *a mistake has been committed.*" In its recent decision the Second Circuit Court of Appeals stated:

> "As already shown, implicit in the district court's reasoning is the *assumption* that no material difference was known in the art at the time of Shaw's invention between filaments of a circular nature and filaments of a precise angular shape from which an *inference* was drawn that orientation of one could be achieved as easily as orientation of the other and that men skilled in the art knew or should have known this. The *same prior art*, however so relied upon by the court to sustain its conclusion of obviousness, contains uncontroverted evidence that clearly negates the assumption and the inference drawn therefrom." *Shaw v. E. B. & A. C. Whiting Co.*, ___ Fed. 2d ____; 163 USPQ 580, 585, CCA2-Nov. 5, 1969.

In applying the standard of invention and particularly the *method* of treating the question of obviousness set forth by this Court in *United States v. Adams,* 383 U.S. 39; 148 USPQ 479, the Second Circuit Court of Appeals in comparing the invention of Shaw in suit with the prior Brubaker patent stated:

> "Obviously, then, disclosures used by the trial court to negate validity demonstrate that, if the Brubaker patent were taken at face value, Shaw's filament could not be produced. Rather than serving to point the way to innovation, therefore, Brubaker's teachings would tend to *discourage* one skilled in the art from investigating the methods ultimately used by Shaw to achieve production of an improved polymer filament. As was said by the Supreme Court in *United States v. Adams, supra,* at 52, 148 USPQ at 483, 484.
>
> 'We *do* say, however, that known *disadvantages* in old devices which would naturally discourage the search for new inventions may be taken into account in determining obviousness.'
>
> "Here, as in Adams, individually old concepts were combined to *solve an existing problem in the art.* * * *
>
> "The district court failed to evaluate the problem posed by the prior art and appears to have relied on the proposition that, as Shaw's solution to the problem *seemed a simple one,* his filament was an obvious outgrowth. The simplicity of an invention or an improvement thereof is not, however, the test of its obviousness. *Goodyear Tire and Rubber Co. v. Ray-O-Vac Co.,* 321 U.S. 275, 279, 60 USPQ 386, 388 (1944).
>
> * * * * *
>
> "The mere recital of the known elements in the art does not, without more, invalidate the patent under Section 103. There must appear *evidence* that the bringing together of these elements would have

been obvious. Doubt as to validity, no matter how strong, cannot justify resort to *unfounded assumptions* or supply deficiencies in the factual background. *Graham v. John Deere Co., supra.*

"Furthermore, it appears that the court below may have used the benefit of hindsight when it stated that 'I find that Shaw expected an alignment in the direction of the axis by the tension forces mentioned in his patent. * * * In other words, Shaw did not obtain an unexpected result.' The issue, however, is not what the patentee expected to produce, but what a hypothetical person 'having ordinary skill in the art' would expect to develop if he had thought about the problem. 35 USC § 103; *Graham v. John Deere Co., supra.*" *Shaw v. E. B. & A. C. Whiting Co.*, ____ Fed. 2d ____; 163 USPQ 580, 586, CCA2-1969.

In again warning about the unjust use of hindsight through borrowing from the disclosure of the new inventor, the same Court commented:

"In resolving the question of obviousness, the judicial view *must not* include the knowledge contributed to the patentee; the teachings of his patent are irrelevant when determining what 'would have been obvious' to one skilled in the prior art *before* he created his manufacture." *Shaw v. E. B. & A. C. Whiting,* ____ Fed. 2d ____; 163 USPQ 580, 586, CCA2-1969.

The recognition to be given to the significance of the acknowledgment of the value of the new invention by a royalty-paying licensee was commented upon as follows:

"Moreover, it is *significant* that E. I. duPont de Nemours & Company, which owns the Carothers and and the Brubaker patents and which may be considered a leader in the plastics field, took out a license under the Shaw patent." *Shaw v. E. B. & A. C. Whiting Co.*, ____ Fed. 2d ____; 163 USPQ 580, 587, CCA2-1969.

Thus it would appear that the Second Circuit Court of Appeals in following the decisions of this Court arrived at a conclusion that is irreconcilable with the conclusion reached by the Court below in this case.

The rationale used by the Court below in reaching its conclusion of "obviousness" through a conjecture of what may or could have been produced as soon as there arose the need for a tool like Petitioners' new tube cutter, is *contrary* to the rationale used by this Court in treating the question of nonobviousness under the statutory limitation. The shifting of the burden of proof to require the Petitioners to establish that the new tool *had not* previously been produced, instead of requiring the Patent Office to establish that the new tool *had* in fact been previously produced when the need arose, is a complete reversal of established principle and practice. (It would seem parallel to require a defendant in a criminal action to prove that he was not guilty.)

The statutes provide that Petitioners shall be *entitled* to patent protection as sought by a properly filed application *unless* certain facts are true. The Patent Office has never established that such facts are true here. The Court below has not been able to identify any positive evidence establishing facts upon which a patent may be denied.

A fair question might be posed as to whether the Court below has not *over reacted* to some decisions of this Court on the requirement of non-obviousness as a condition of patentability, and thereby abridged the Petitioners' right to protection of their tool. It is believed that a decision of this Court reversing the decision below will be important in setting the patent system track on its *proper course* and in line with the Constitutional intent as heretofore construed by this Court.

SUMMARY.

The Petitioners' right to the sought for patent protection upon their new plumbing tool has been abridged contrary to law, contrary to the purpose and intent of the Constitutional basis for patents and in violation of the directive of the enabling patent statutes that they shall be entitled to a patent.

The Court below made a fundamental error in shifting the burden of proof from the Patent Office to the Petitioners, and in reaching the Court's conclusion of "obviousness" by its holding that for *aught that appears* the new tool had been previously produced as soon as the need for it arose, but without any positive evidence produced by the Patent Office that the new tool was in fact previously produced.

By reason of the grievous error below and the importance of the precedent of the decision below, if left standing, upon the promotion of the progress of the useful arts in this country, the decision below should be reviewed and reversed by this Court.

The grant of the Petition for Writ of Certiorari is believed to be fully warranted.

Respectfully submitted,

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WOODLING, KROST, GRANGER AND RUST,
Attorneys for Petitioners.

January 29, 1970.

APPENDIX A.

OPINION AND JUDGMENT OF THE UNITED STATES COURT OF CUSTOMS AND PATENT APPEALS.

PATENT APPEAL NO. 8189.

(October 23, 1969.)

RICH, *Acting Chief Judge.*

This appeal is from the decision of the Patent Office Board of Appeals affirming the rejection of claims 5, 10, 11, 13, 17, 19, and 21 of application serial No. 375,217, filed June 15, 1964, entitled "Tool for Internally Cutting a Tube at an Angle to the Axis Thereof." Five claims have been allowed.

The claimed invention is a tool used for cutting tubing or pipe, such as copper tubing used as water lines in buildings. Appellants' brief informs us that conventional plumbing procedure calls for the rough installation of lengths of tubing in the open walls and spaces below the floors of buildings under construction such that the ends of the individual lengths extend slightly beyond the points where connections are ultimately to be made. Subsequently, it is necessary to cut off the excess tubing at the exact location where an "L" or "T" fitting, for example, is to be introduced. It is this cutting-off operation for which appellants' tool is said to be particularly well suited.

Setting the stage for a description of the claimed tool, appellants' brief states the following about certain prior art pipe and tubing cutting tools and the alleged shortcomings thereof:

> The customary tool used in the plumbing trade for cutting off the "throw-away" piece is an external cutter * * *.
>
> A typical external cutter has a C-shaped member that embraces the tubing and which carries rotatable

disk cutters directed inwardly toward the outer wall of the tube. The C-shaped member usually has a handle extending outwardly and by manually revolving the C-shaped member carrying the cutter disks around the tube, the cutters cut into the outer wall of the tube. Means are provided on the C-shaped member for gradually moving the cutter disks toward each other against the tube as they progressively cut into the tube wall during revolving of the C-shaped member around the tube.

There are distinct disadvantages in the use of such external cutters. First, very often there is not sufficient space around the outer wall of the tube to swing the cutter therearound. Sometimes, the tubing is extending alongside and very closely to a floor joist * * *. Sometimes, the tubing is extending up from a floor in the corner of a room too close to the walls for the revolving of the external cutter.

Heretofore, in such tight situations plumbers have sometimes laboriously used a hack saw, but this is awkward and difficult in a cramped and confined space. Worse still, the hack saw mutilates, pinches and chews up the end of the tubing where cut, particularly the relatively soft copper tubing commonly used in installing water lines in a building. This requires considerable secondary operations on the tubing at the location of the saw cut, such as reaming it out to bring it back to cylindrical shape, removing burs and slivers, and trying to restore the cut end of the tubing so that it will fit readily and properly into the cylindrical socket of a coupling, "L" or "T" fitting for connection to another length of tubing.

The external cutters have been the customary and standard tool used by plumbers for cutting off these end portions of tubing, notwithstanding their limitations on use in confined and restricted space. However, they have other serious shortcomings, such as the pinching of the metal wall of the tubing inwardly as the disk cutters progressively cut into the tube wall. This is particularly true of the softer met-

als such as copper, brass and aluminum, and which are now commonly used in installing lines in a building, such as water lines and electric cable conduits. This pinching in of the tube wall where cut seriously decreases the internal diameter of the tube and leaves a burred, rough edge directed inwardly of the tube. This necessitates the subsequent reaming out of the tube at the location of the cut to try to bring it back to its original true cylindrical form, and to remove the burs and sharp edges at the location of the cut. * * * For the tube end to fit readily and properly into the cylindrical socket of a coupling, "L" or "T" fitting, it should be a true cylinder free of burs and the like.

Another approach has been tried out for cutting a tube, this being by means of an internal cutter. Such an internal cutter has been the type that has been used for cutting out steel tubes in a steam boiler in the removal of deteriorated steel tubes from the steel walls of the boiler in its renovation. In such internal cutters used for cutting the boiler tubes, a shaft was inserted into the open end of the tube from outside the boiler. The shaft carried either cutting disks or a cutting blade which was forced radially outward against the inner wall of the steel tube. The direction of the travel of the cutters was radially outward *in a plane normal* to the axis of the tube and of the shaft. As the shaft was rotated on its axis, the cutters would revolve around the shaft axis against the inner wall of the tube and progressively cut directly into the tube so as to sever it from the boiler wall.

A very serious shortcoming of such internal cutting tools that had been used for cutting steel boiler tubes was that when the tool was utilized on copper, brass, aluminum, and other soft metal tubing, the cutters bellowed out or beaded the metal wall as they cut the metal. This resulted in a bell or flare on the end of the tubing where cut. Such a belled or flared end would not fit readily or properly into the cylindrical socket of a coupling, "L" or "T" fitting as required.

* * * As a result, the plumbers usually preferred and used the external cutters with all of the shortcomings of the same. Although the boiler-type internal cutters were old and well known, they did not become accepted to any extent in the plumbing industry dealing with tubing of the softer metals because of the described serious disadvantages and limitations of the internal cutting tools used for steel boiler tubes.

The claimed tool and the progressive steps in a cutting operation using it are shown in the following three figures from appellants' specification:

APPELLANTS

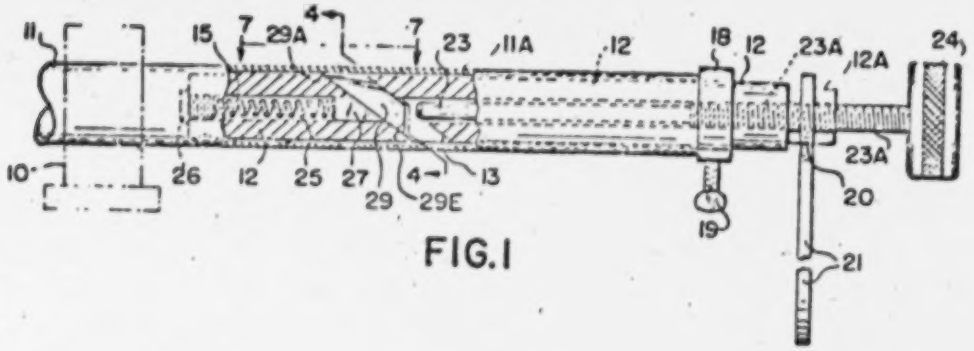


FIG.1

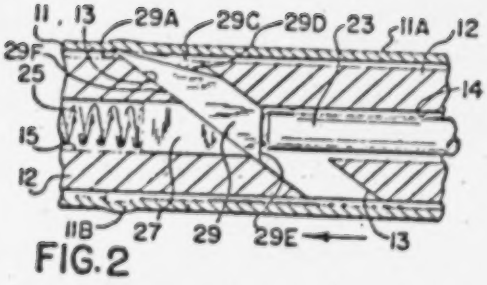


FIG.2

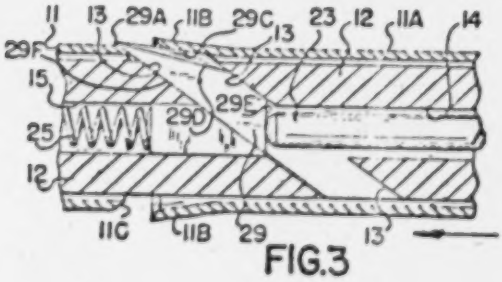


FIG.3

A shaft 12 is inserted into the open end of tubing 11 to a depth that is determined by adjustable collar 18. Shaft 12 has a transverse slot 13 extending therethrough at an *acute angle* (such as 45°) to the axis of the shaft and tube.

Disposed within slot 13 is a cutting bit 29 slidable therealong to move in a corresponding angular path.

A rod 23 extends through an axial opening 14 in shaft 12, the threaded end 23A of the rod being threaded into the outer end of opening 14. By turning knob 24, the inner end of rod 23 is caused to push against the rearward flat face 29E of cutting bit 29. This moves the bit simultaneously outwardly against the inner wall of tube 11 and at an incline away from the free end thereof.

As shown in Fig. 3, the cutting point 29A not only protrudes into and cuts the tube wall as shaft 12 is rotated, but also rides up over the tube wall as the cutting process progresses. This overriding action not only confines the tube wall to prevent it from flaring outwardly at the new tube terminal, thus holding its true cylindrical shape, but also forms the chamfered cut end 11C on the new tube terminal.

Claims 10, 11, and 21 are representative of those on appeal:

> 10. A tool for cutting a terminal piece from a metal tube from within the tube at a distance from the open free end of the tube, comprising a shaft insertable in said tube and rotatable therein relative to the tube wall, said shaft having an opening formed therein adjacent a first end portion and extending to a side of the shaft, said shaft having a second end portion accessible from the free end of said tube, said opening having a guide surface defining a wall on the side thereof farthest removed from said second end portion, said guide surface being disposed in a plane at an acute angle to the axis of the shaft and inclined away from said second end portion, a cutting bit disposed in said opening and having a side surface slidably engaging said guide surface of said opening and disposed at said acute angle, said cutting bit being revolved by the shaft with the rotation of said shaft, actuating means carried by the shaft and operatively

engaging said cutting bit to urge said cutting bit outwardly of said opening at said acute angle toward and against the wall of a tube in which the tube is inserted, said cutting bit having a cutting edge substantially in the plane of said side surface adapted to cut said tube wall upon being urged against the tube wall and upon being revolved relative thereto by the rotation of said shaft, the said cutting bit adjacent said cutting edge and extending therefrom to said side surface of the bit that is engageable by said guide surface being inclined toward said second end portion of the shaft to over-ride the edge of the tube farthest removed from said free end as the tube is being cut by said cutting edge said over-riding of said tube restraining the tube at said edge from outward flaring, said cutting bit having a length not substantially exceeding the length of said opening to be substantially accommodated therein upon being positioned in withdrawn position for permitting the ready insertion of the cutting bit in said opening wholly into a tube with said first end portion of the shaft.

11. A tool as claimed in claim 10 and in which said acute angle is of the order of 35° to 55°.

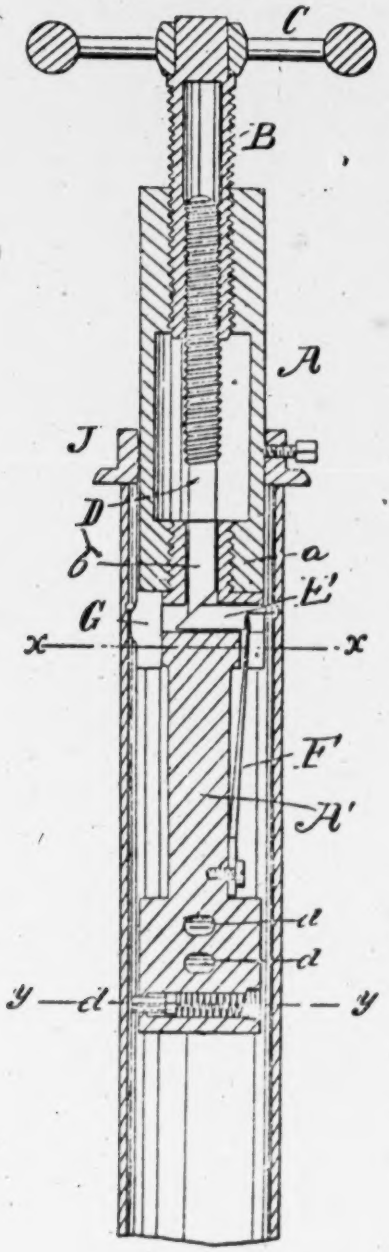
21. A tool as claimed in claim 10 and in which said acute angle is of the order of 40° to 50°.

The sole issue is whether the invention of the appealed claims is obvious (35 USC 103) in view of the following prior art:

Thomas	70,652	Nov. 5, 1867
Vance	380,777	Apr. 10, 1888

Thomas, the primary reference, discloses a tool for cutting off the ends of boiler-tubes or tubes for other purposes wherein there is arranged, in a suitable stock, a cutting-tool which is forced outwardly with a screw by means of a double-inclined plane. The following is Fig. 1 from Thomas:

Fig: 1.



The cutting bit E is forced *radially* outward *in a plane normal to the tool axis* by the turning of handle C which moves the angular end face of member *b* against the angular end face of cutter bit E. With respect to the issue of obviousness, the only material difference between the tool of Thomas and appellants' tool is the angle of inclination of the cutting bit to the axis of the tool.

Referring to Fig. 2 of Vance, reproduced below, a cutter C is carried in a diagonal channel *a* extending through tool shaft A. The shaft is intended to be inserted into the open end of a boiler tube T from outside the boiler wall. In use, the outer end of cutter C is struck so as to cause the sharp edge thereof to completely penetrate the tube wall. The eccentric device *e* is then turned to lock the cutter in its penetrated position and shaft A is then rotated on its axis to sever the tube in one revolution.

VANCE

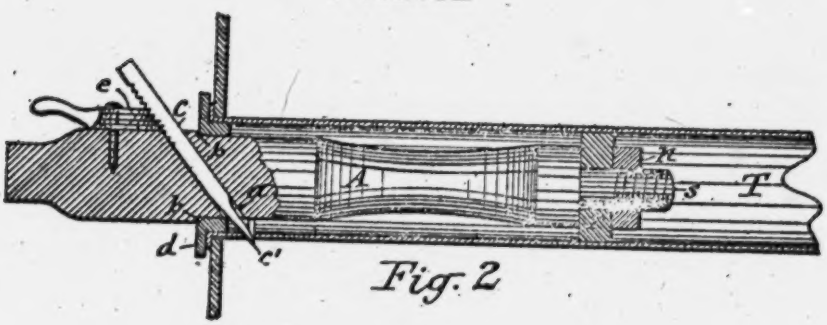


Fig. 2

The examiner's position in the use of Thomas and Vance as references was as follows:

> The Thomas reference discloses a metal tube, shaft (a and A') and a handle (C) for rotating said shaft. A cutting bit (E') is carried by the shaft and having means (b) to actuate the cutting bit and to adjust the protrusion of said cutting bit. The end of the actuating means (b) is inclined to engage the opposed

surface of the cutting bit for slidable movement of said parts relative to each other, to vary the protrusion of the cutting bit. The cutting bit is sufficiently short so as to permit said bit in withdrawn position to be located within the tool, in order that it may be readily inserted or withdrawn from a tube.

The Vance reference discloses an internal tube cutter having an adjustable cutting bit that is positioned at an acute angle as included in these claims. The cutting bit also produces a bevel on the end of the severed pipe as stated above in the description of the Vance reference. To have the cutting bit of Thomas provided with additional cutting means to produce a bevel on the end of the severed pipe and positioned at an acute angle to the axis of the tool and tube as disclosed by Vance would be an expedient obvious to one skilled in the art in accordance with 35 U.S.C. 103, because it is merely a mechanical design feature as well as selecting various old features from the prior art and incorporating same into a single device, with each performing their old function.

The board essentially agreed with the examiner, saying "it is our opinion that it would be obvious to one skilled in the art to have the cutting means in Thomas extend at an angle to the axis of the tube as disclosed by Vance."

Appellants argue the century-old status of the references but this argument does not impress us, absent some showing that the art tried and failed to solve some problem notwithstanding its presumed knowledge of the references. For aught that appears, as soon as the need for an inside tubing cutter for copper tube was perceived it was produced out of the accumulated skill of the art.

Appellants rely heavily on the argument that the steel boiler-tube cutters of the references do not make their claimed invention obvious within the meaning of

section 103 because it would not be apparent therefrom that internal cutters used on copper or other soft metal tubing would cause it to bulge from the pressure exerted thereon, thus making subsequent assembly with other fittings difficult. But this desideratum of maintaining the external diameter of the cut tube was contemplated and disclosed by Vance, who says:

> The chisel-pointed cutting edge of *c'* of the inclined cutter *c* produces a beveled cut on the end of the severed tube, and thereby leaves the same in proper shape to allow it to be removed through the same hole in the flue-sheet in which it was seated, and also in suitable shape for scarfing and welding the said end of the tube.

Obviously, if the boiler tube initially fits closely in the hole in the flue sheet, as clearly it does, it is not bulged by the cutting tool because of the angle of the cutting tool which exerts an inward pressure on the tube end as the cut is made. Thus the tubing can be withdrawn through the hole. It seems evident to us that Vance contemplated that a cut otherwise made might bulge the tube—even the steel boiler tube. Surely one skilled in this mechanic art would appreciate the elementary fact that the softer the metal the greater the bulge. Avoiding bulge was clearly uppermost in Vance's mind as he mentions it twice in his specification. The specification would convey this teaching to those skilled in the art and suggest the advantage of the cutter angle shown by Vance, which corresponds to the angle of appellants' claims.

We see no error in the rejection and the decision of the board is *affirmed.*

AFFIRMED.

APPENDIX B.

35 USC 101.

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

35 USC 102.

A person shall be entitled to a patent unless—

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States, or

(c) he has abandoned the invention, or

(d) the invention was first patented or caused to be patented by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application filed more than twelve months before the filing of the application in the United States, or

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or

(f) he did not himself invent the subject matter sought to be patented, or

(g) before the applicant's invention thereof the invention was made in this country by another who had not abandoned, suppressed, or concealed it. In determining priority of invention there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.

35 USC 103.

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.